Latest advances using Antelope on the web: the USArray ANF

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Web product categories

- Current network status
- State-of-health
- Special events
- Online station calibration
- Report generation
- Waveform server

Everything online at http://anf.ucsd.edu

Current network status

- Summary of deployed stations
  - Network operator
  - Communications type & provider
    - Instruments (Datalogger, Sensor, Baler)
    - current anf stations
- Includes latencies from Orb status
- Images & movies of network evolution
- Downloadable auto-updating Google Maps

Station detail pages

- Metadata
- Event detection: freqency & orientation
- Daily data return rates
- State-of-health plots
- IRIS Power Density Function plots
- Datalogger events (e.g. MRC)
- http://anf.ucsd.edu/stations/TA/109C

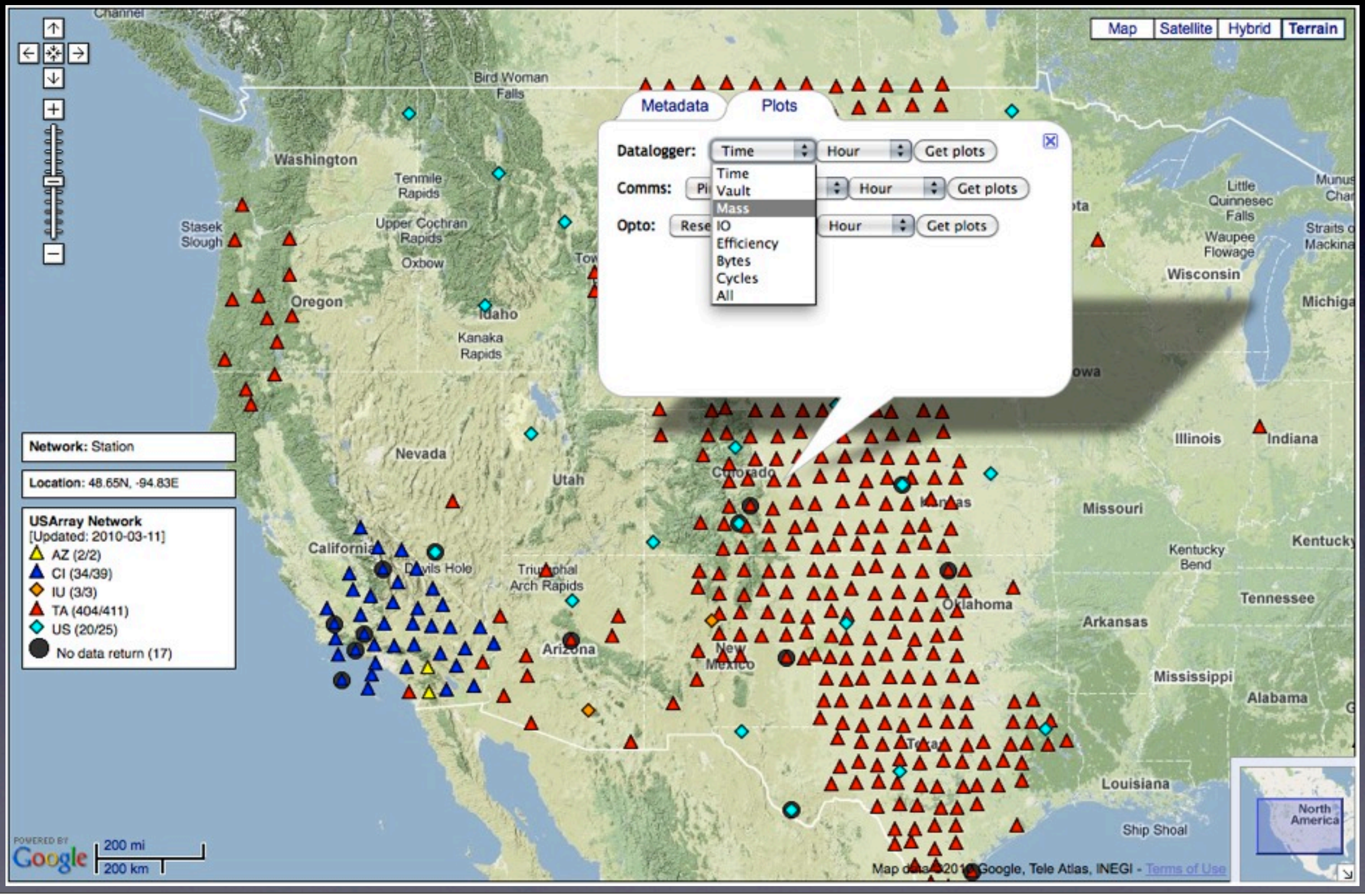
Deployment movies

Network evolution; available in multiple formats

State-of-health: maps

- Built for station engineers
- Easy to use Google maps interface with graphs
- Real time (1 Hz data) monitoring of -
  - Datalogger: GPS time, vault conditions, mass position, I/O, efficiency, bytes, cycles
  - Comms: ping loss, ping roundtrip time, signal strength, CDMA net chan
  - Opto: reserve battery, pump existence & activity, vault interface enclosure

http://anf.ucsd.edu/tools/soh/plots.php



EarthScope ANF Website :: Online Tools :: Soh :: Datalogger State-of-health Plots

https://anf.ucsd.edu/tools/soh/plots.php

Google

earthscope

Array Network Facility

ANF

- home
- search
- about
- faq
- goals
- publications
- partners
- timelines
- dev
- contact us

USArray

- stations
- online tools
- earthquakes
- special events
- links
- admin

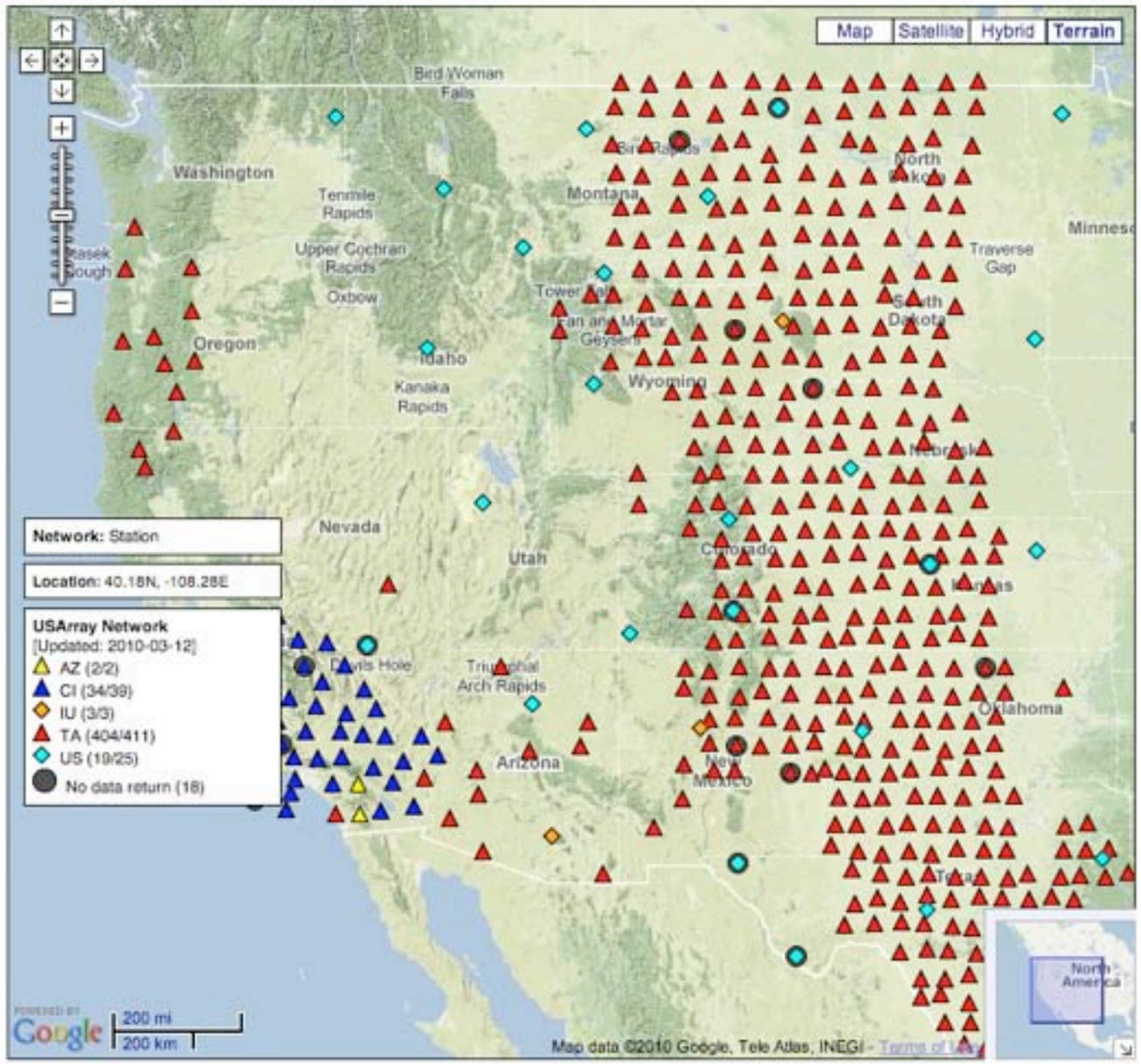
Flexible Arrays

- overview

Home » Online Tools » Soh » Datalogger State-of-health Plots

Show information about this page ↓

Shortcut station code (e.g.109C): Show on map »



PLOTS REQUESTED

Plots will be displayed here

State-of-health: webdlmon

- Native web-based version of Antelope dlmon application
- Displays sortable table with embedded links to real-time graphs for each SOH channel
- In Antelope contributed code Git repository
- Demonstration...

EarthScope ANF Website :: Online Tools :: Real-time USArray Web-based Data Logger Monitor v.2.0

https://anf.ucsd.edu/tools/webdlmon/

Google

earthscope

Array Network Facility

earthscope

Home » Online Tools » Real-time USArray Web-based Data Logger Monitor v.2.0

Data in this table is 203 seconds old | Customize the table fields for this browser | View the legend for the table | Show information about this page ↓ | Problems with this application? Use the old image dump of Antelope's USArray TA dlmon

dlname	comt	comp	pmp	dltncy	runtm	ni24	np24	ni24	dr	br24	bw24	m0	m1	m2	temp	volt	amp
TA_R18A	cell_modem	Att	I	[illegible]	[illegible]	29	[illegible]	0	24	22m	527k	17	-13	17	21C	12.2V	66mA
TA_C21A	vsat	wild_blue		[illegible]	[illegible]	0	0	0	0	0k	0k						
TA_X23A	cell_modem	V2	I	[illegible]	[illegible]	1	1	0	0	16m	580k	-16	-30	-20	6C	12.3V	63mA
TA_R26A	cell_modem	V2	I	[illegible]	[illegible]	1	1	0	16	15m	586k	-25	-41	-33	6C	12.3V	63mA
TA_N24A	cell_modem	Att	I	3s	1h33m4s	1	0	0	4.5k	48m	931k	-31	36	-31	8C	13.2V	64mA
TA_U33A	cell_modem	V2	I	[illegible]	1h53m57s	62	[illegible]	0	0	1.2m	115k	-46	-33	25	12C	13.7V	56mA
TA_W13A	cell_modem	V2	I	47m0s	[illegible]	136	92	0	8	23m	701k	9	3	8	11C	13.4V	74mA
TA_R24A	cell_modem	V2		[illegible]	[illegible]	0	0	0	0	12m	448k						
TA_Y12C	regular_internet	I		[illegible]	[illegible]	4	64	0	8	22m	693k	6	1	-9	23C	12.9V	84mA
TA_Y12A	vsat	wild_blue	I	[illegible]	[illegible]	3	3	0	8	20m	528k	-4	-21	39	12C	14V	70mA
TA_Y14A	cell_modem	Att		[illegible]	[illegible]	0	0	0	0	0k	0k						
TA_034A	cell_modem	Att	I	3s	6h4m52s	3	2	0	2.4k	26m	910k	6	9	11	23C	12.6V	62mA
TA_035A	cell_modem	V2	I	3s	6h4m31s	4	2	0	3k	31m	910k	10	-7	6	27C	12.6V	60mA
TA_035Z	cell_modem	V2	I	3s	4h21m59s	4	2	0	2.9k	31m	912k	-2	5	-1	24C	12.8V	60mA
TA_109C	regular_internet	I	I	2s	6h4m32s	2	2	0	2.9k	31m	923k	13	2	25	21C	12.8V	67mA
TA_112A	cell_modem	Allt	I	6s	52m13s	3	2	0	2.2k	22m	862k	5	-7	12	24C	13.2V	73mA
TA_121A	cell_modem	V2	I	13s	5h2m51s	3	2	0	1.8k	21m	849k	24	-17	-9	14C	13.5V	74mA
TA_128A	cell_modem	Att	I	9s	6h4m30s	4	2	0	2.5k	23m	853k	2	-17	-12	17C	13.1V	74mA
TA_129A	cell_modem	Att	I	7s	11m35s	24	2	0	2.6k	25m	848k	29	-5	3	16C	12.9V	72mA
TA_130A	cell_modem	V2	I	3s	2h18m29s	5	2	0	2.4k	24m	913k	10	-20	-1	16C	12.9V	60mA
TA_131A	cell_modem	V2	I	3s	26m14s	4	2	0	2.2k	22m	918k	14	-17	5	16C	12.9V	58mA
TA_133A	cell_modem	V2	I	3s	1h24m48s	7	2	0	3.7k	31m	938k	-28	2	-13	18C	13.1V	61mA
TA_134A	cell_modem	V2	I	3s	24m45s	4	2	0	2.9k	31m	930k	7	4	1	16C	12.8V	75mA
TA_135A	cell_modem	Att	I	3s	4h9m49s	3	2	0	2.9k	31m	928k	-30	2	44	15C	12.6V	76mA
TA_137A	cell_modem	V2	I	3s	6h4m43s	3	2	0	3k	31m	913k	15	-17	21	16C	13.2V	61mA

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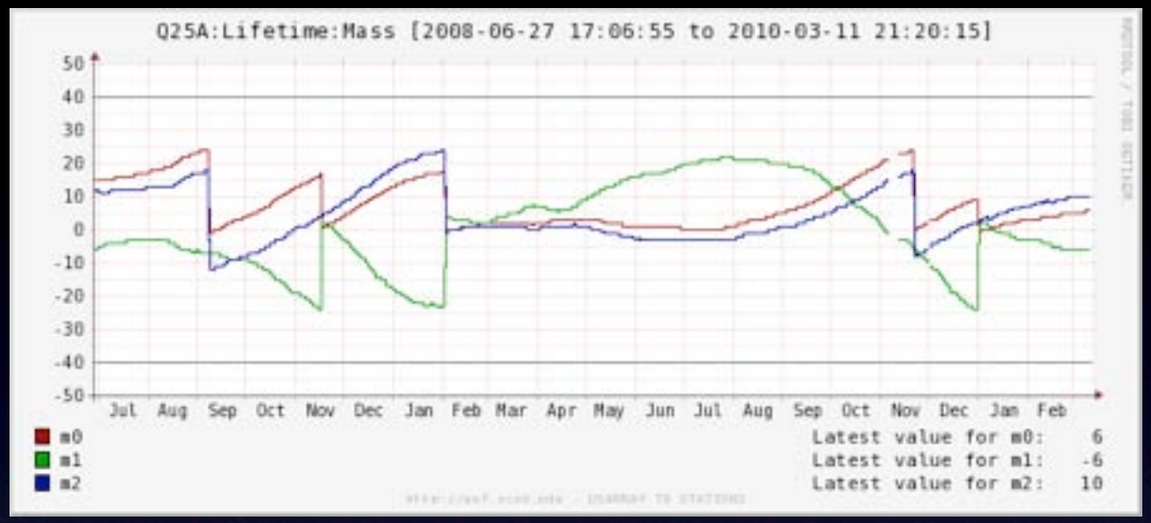
Legend

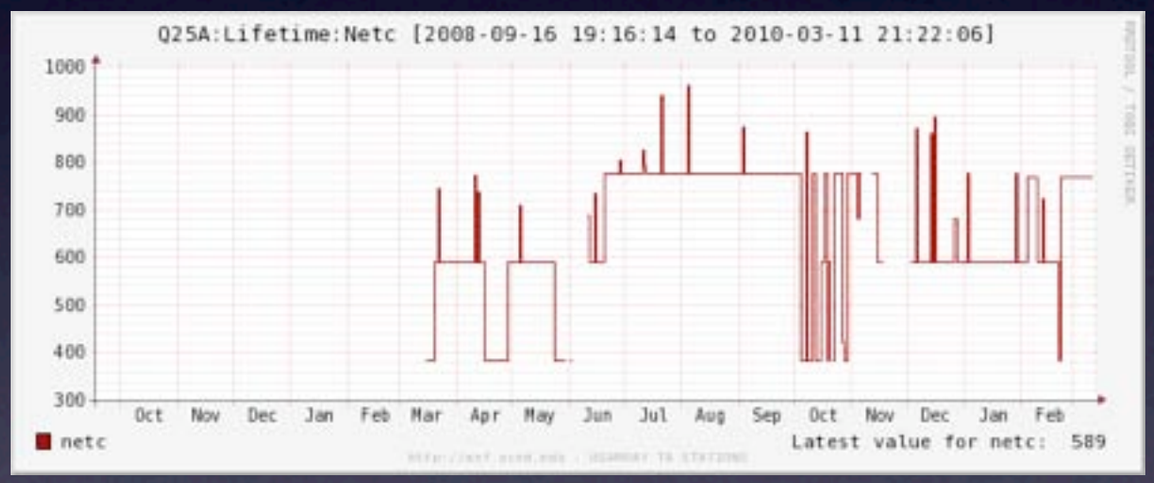
dlname

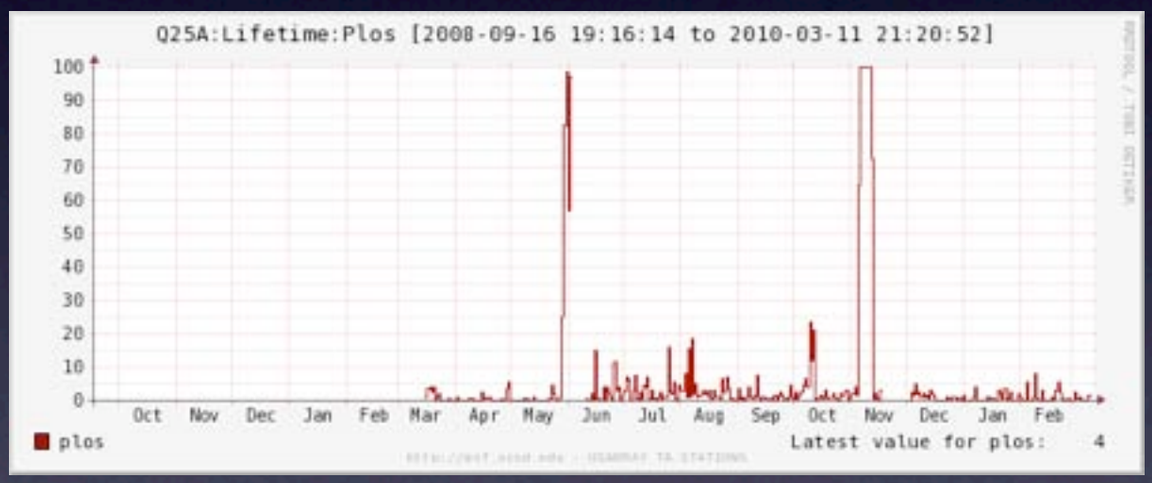
- Currently connected and acquiring data
- Waiting for a datalogger POC
- Establishing a connection

Wednesday, March 24, 2010

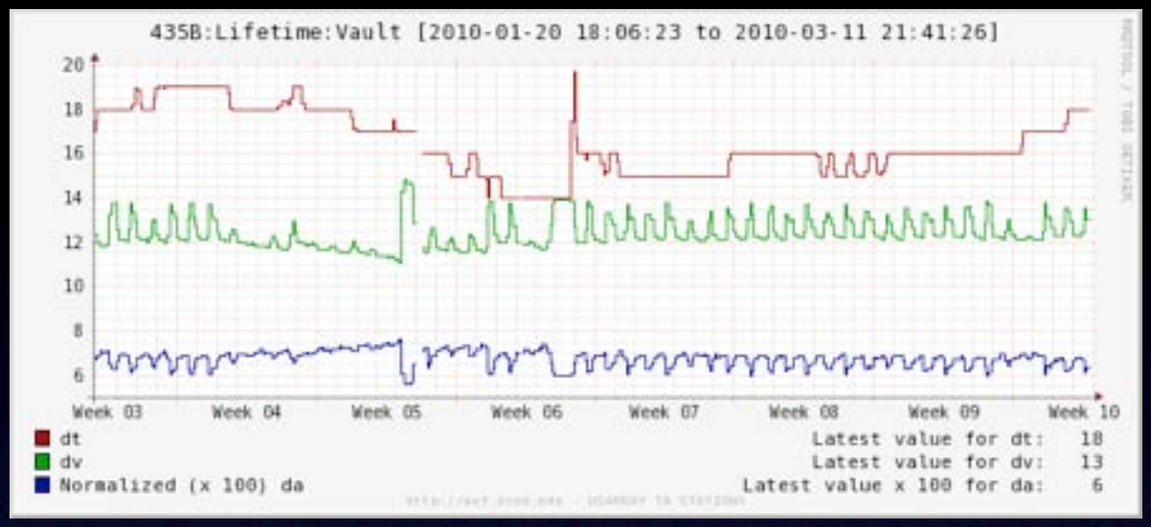
Diagnostics: a happy station

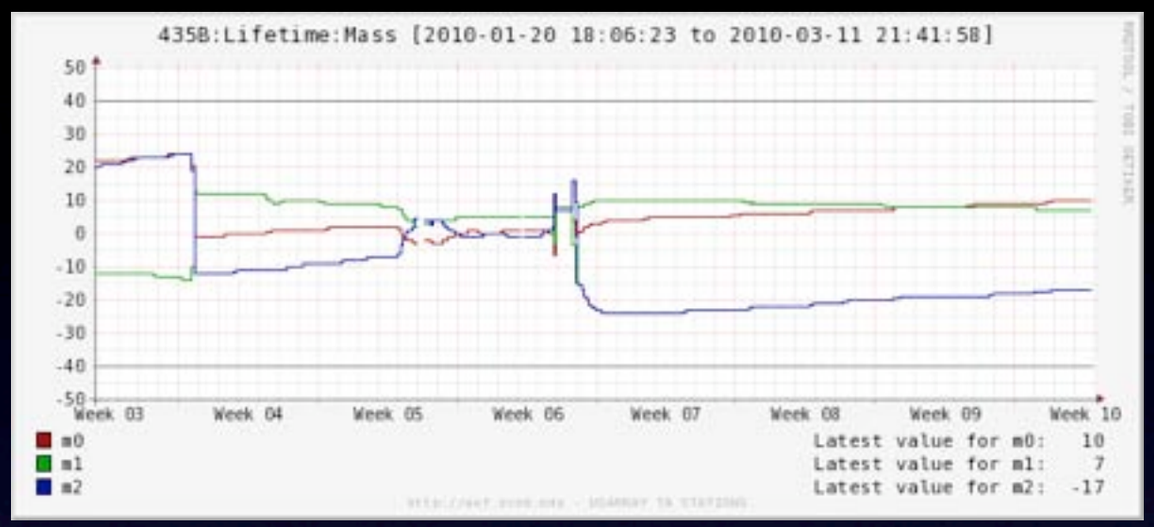


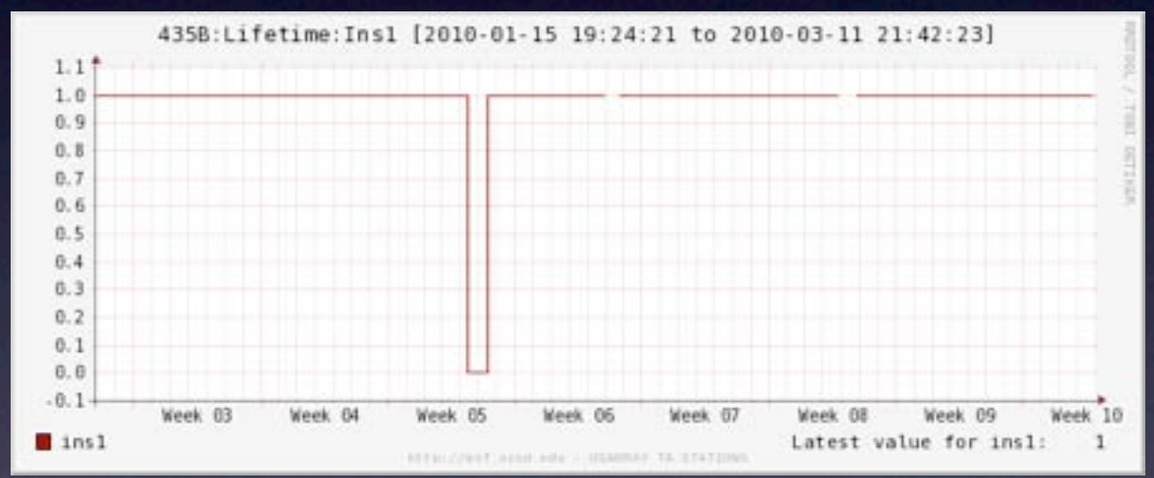


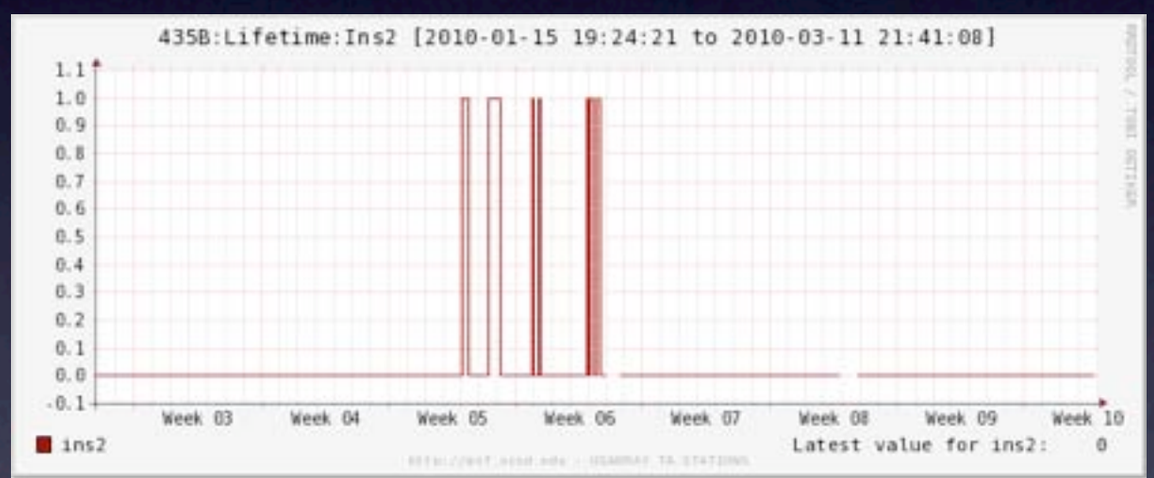


Diagnostics: an unhappy station









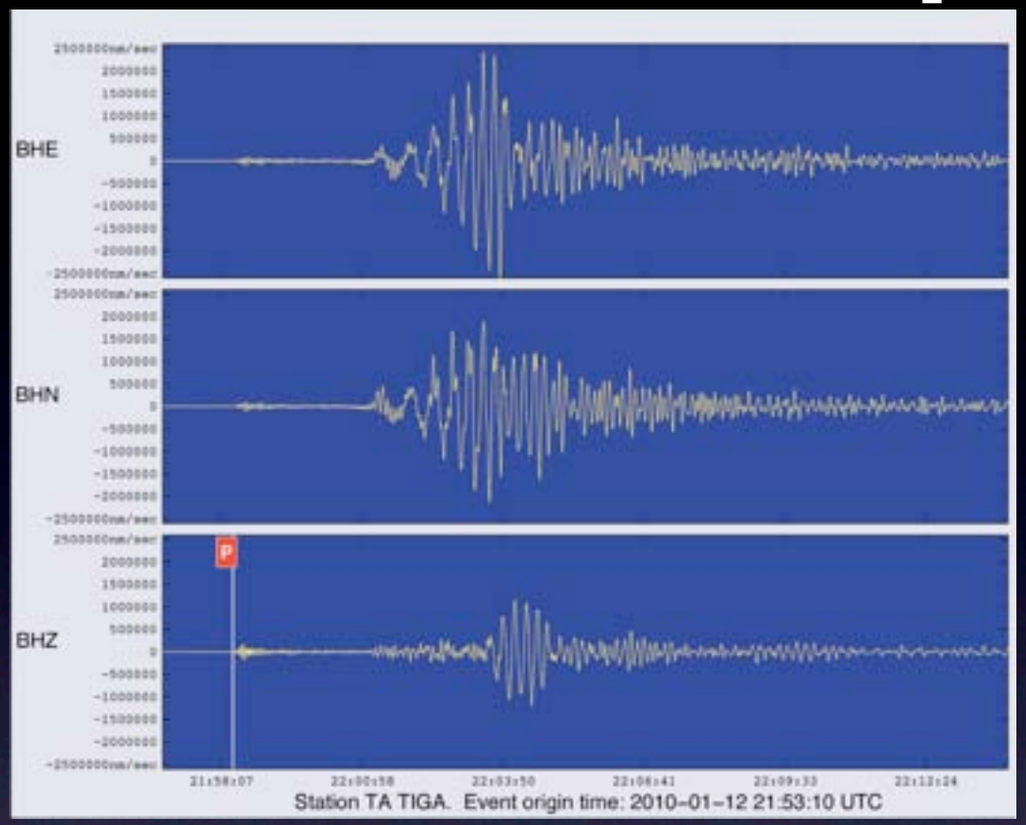
Network-wide deep archive of SOH plots

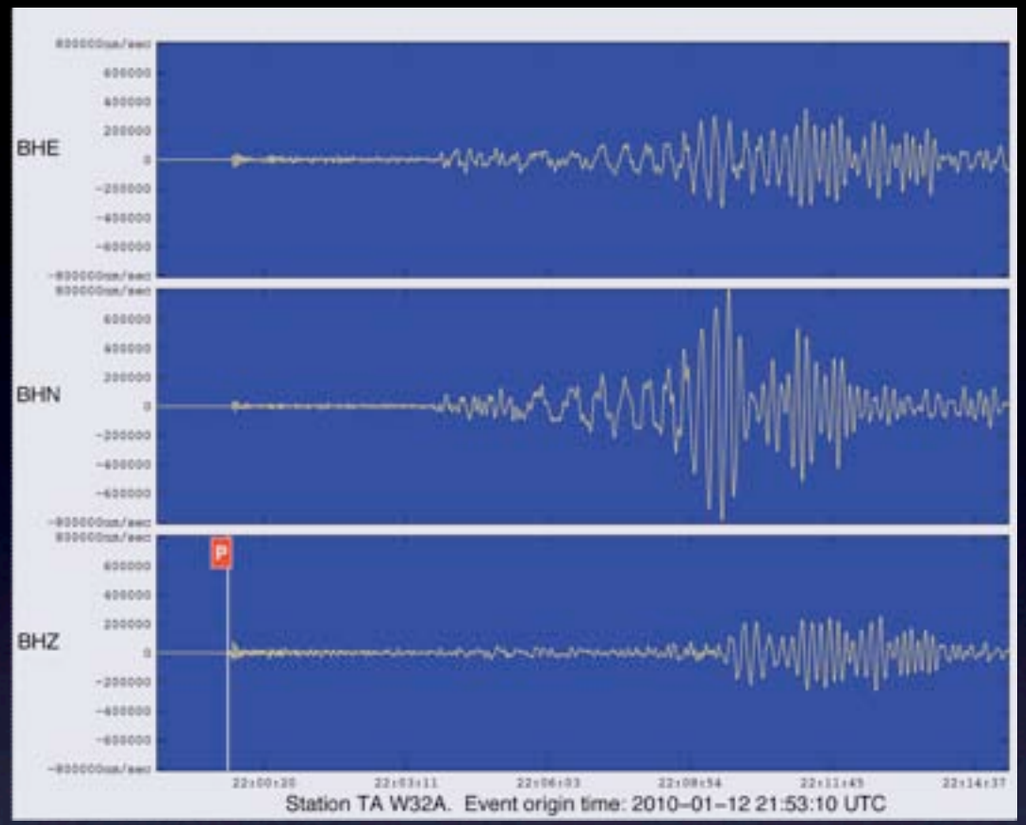
- Auto-generated every month
- Allow station engineers to observe network-wide trends
- Created for:
  - Last month input/output rates
  - Last year mass positions
  - Last month vault
- In 2009 helped diagnose bad modem firmware update
- http://anf.ucsd.edu/tools/soh_archive_explorer/

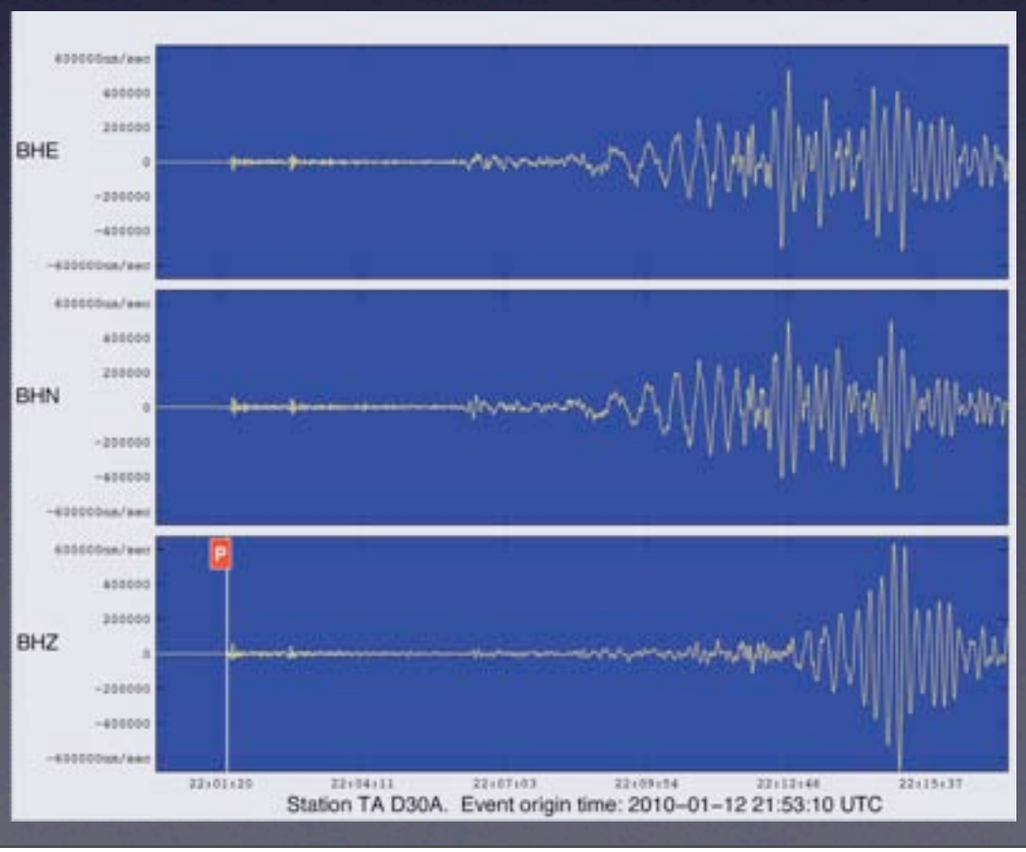
Special events

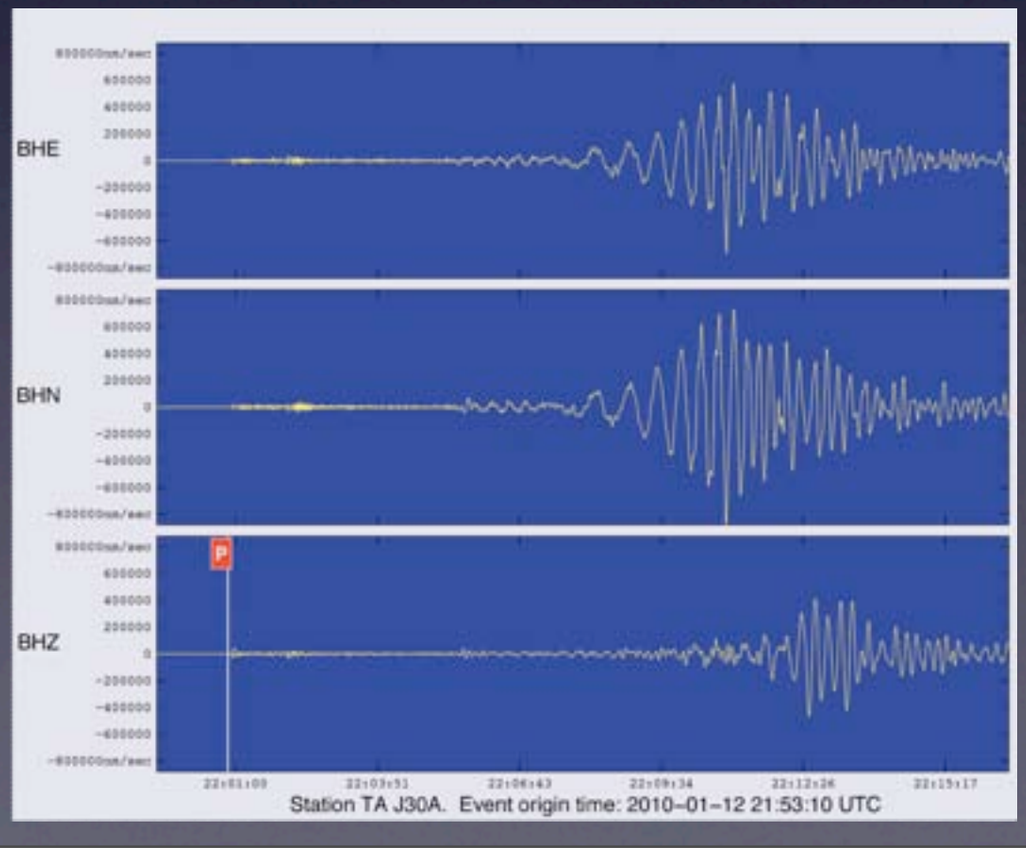
- Web pages created for significant earthquakes
- 13 language translations
- For all in-network regional (>3), global teleseismic (>6) events, and swarms (eg. Yellowstone N.P.)
- Includes Google maps, dataless SEED volumes
- NEW: Per station waveform plots with arrivals for 400+ stations; high res. EPS & low res. PNG files - for landowners & researchers (station data quality)
  - Created automatically by Python & Matlab

Per station plots: 7.0 Haiti

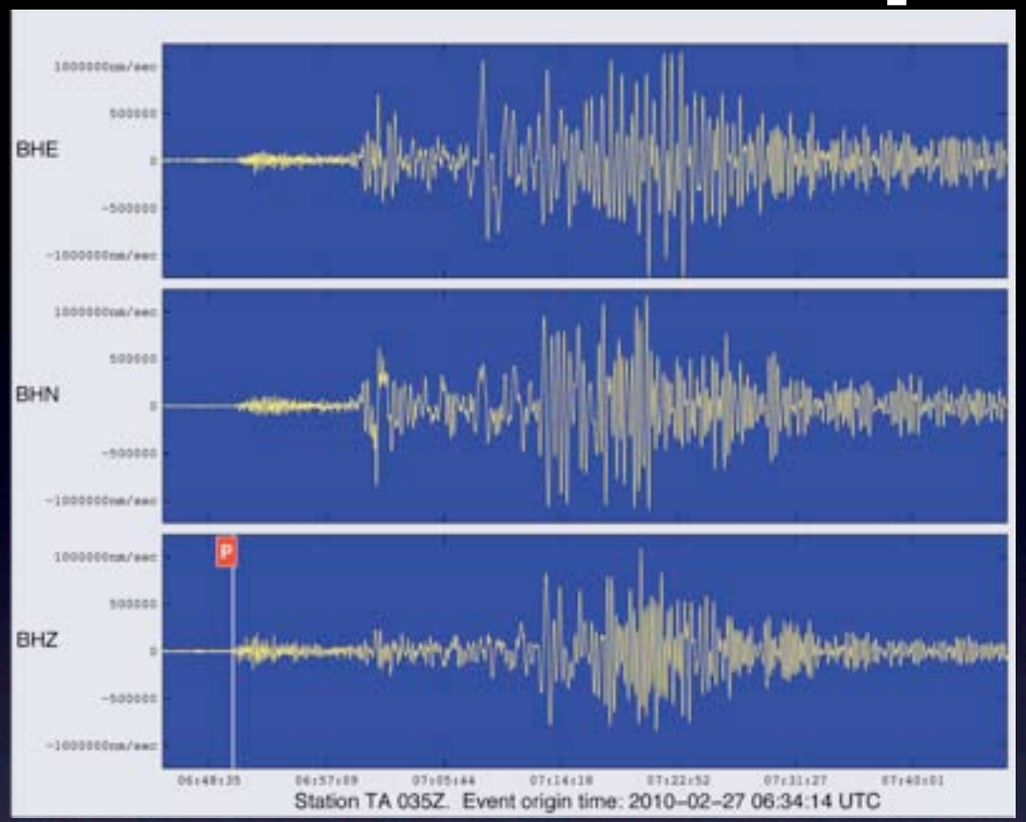


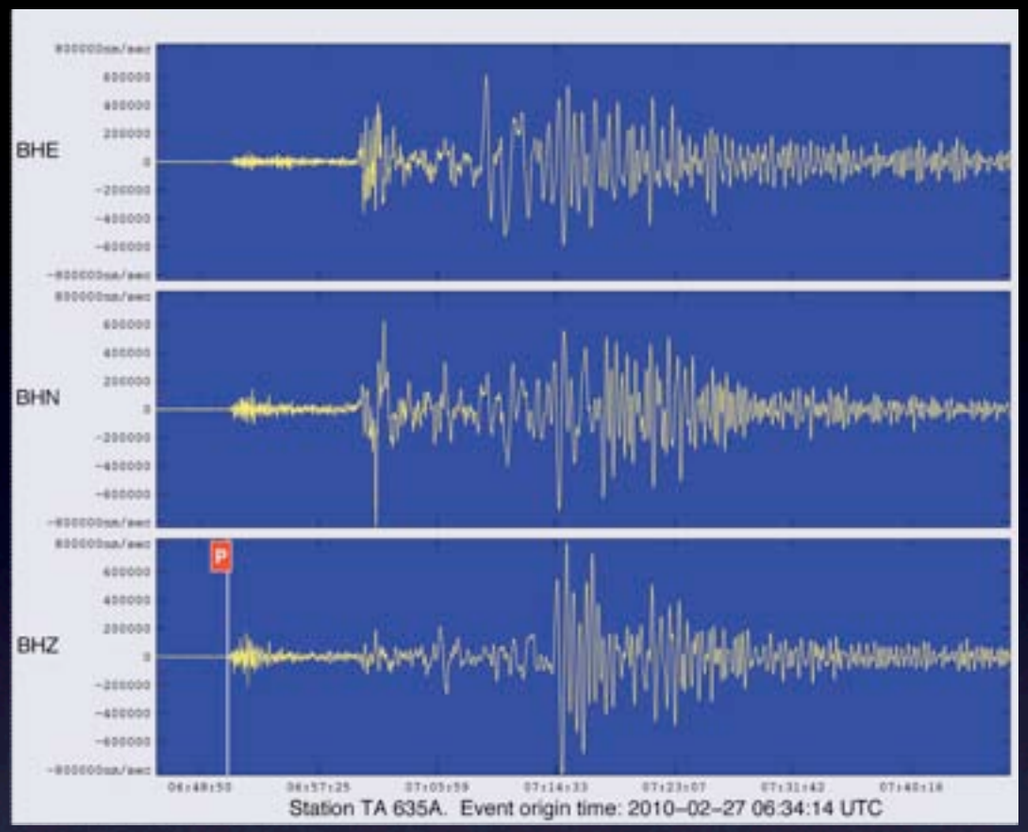


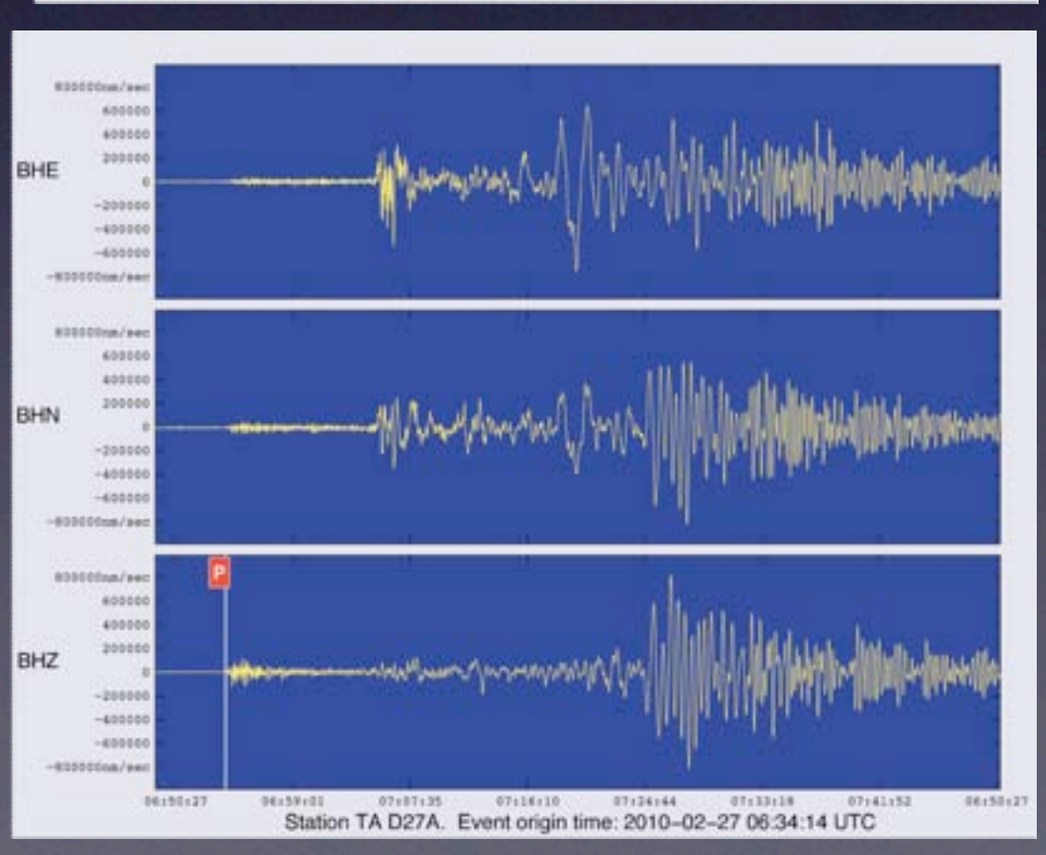


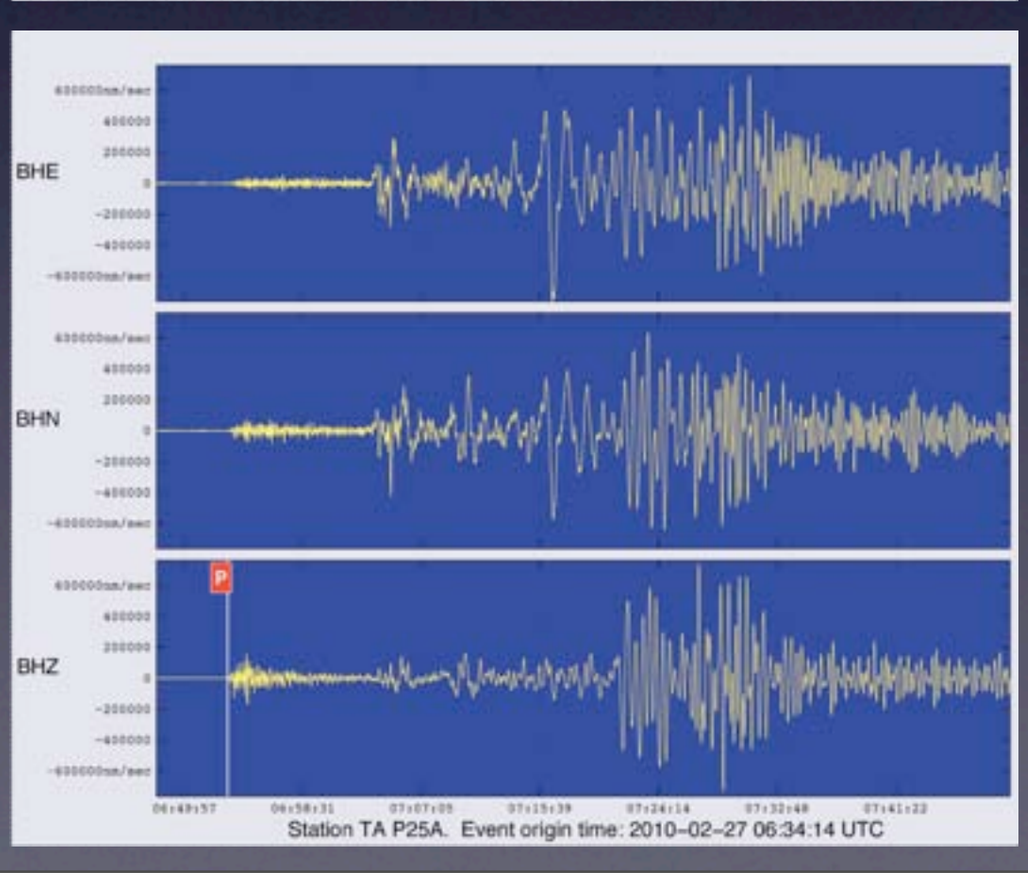


Per station plots: 8.8 Chile









Online station calibration

- In password protected Admin section
- Allows select users to calibrate a station without leaving the office
- Displays results of most recent calibration
- ‘Desktop application’ interface: drag’n’drop stations into calibration bucket
- Logs all calibration requests (user, time, results) and auto-emails with results
- Demonstration....

Report generation

- Landowner reports
  - Station metadata
  - Regional & teleseismic events recorded
  - Representative events
  - More information links
  - Memento for the landowner
  - Satisfies agency/government reporting

Report generation

- Station digest reports
  - Complete station history for researchers
  - Station metadata
  - All events recorded: histograms, roseplots
  - Any datalogger mods: MRC, calibration
  - Calibration results
  - All lifetime state-of-health plots
  - Satisfies science reporting

Waveform server

- Per station and event interactive waveforms displayed in a browser
- Event-driven network engine
- Written in Python with Twisted library
- jQuery powered client side
- In Antelope contributed code Git repository
- demo waveform server

Conclusions

- With modern web technologies & browsers it is possible publish essential information including waveforms, maps, state-of-healt
- Allows remote (secure) access from anywhere on the globe
- The same toolkit can be themed (look & feel) to reflect your institution or business

The future

- Smartphones
  - Cocoa (Apple iPhone)
  - Android (Google)
  - WebOS (Palm)
- Will allow anyone with a phone to interact with Antelope, dataloggers, instruments
- ANF developing webdlmon for phones